

F-Series Motor Encoder Changes

Catalog Numbers F-4030, F-4050, F-4075, F-6100, F-6200, F-6300

This publication explains the changes to the F-Series motor encoder output signals that result from a change of supplier.

A Rockwell Automation Knowbase document, [number 254495](#), titled 'F-Series Motors: Encoder Signal Changes' is available with additional details about this change.

An Overview of the Change

The change to a new encoder results in minor changes to the width of the Index pulse, and to the voltage levels of the A, B, and Index output signals. These changes should have no impact on system performance when operated with Rockwell Automation servo drives and controllers.

- The Index pulse-width change applies to all F-Series motors with 2000 line encoders. These motors have a catalog number F-xxxx-x-Hxxxx.
- The Index pulse-width change does not apply to F-Series motors with 5000 line encoders. These motors have a catalog number F-xxxx-x-Kxxxx.
- The A, B, and Index output signals voltage-level changes apply to all F-Series motors.

How to Identify the Change

The change to the encoder signals can be identified by the serial number or date code on the nameplate attached to the motor. Refer to the Knowbase document cited earlier for information on the serial numbers or date codes assigned to motors that have the new encoders.

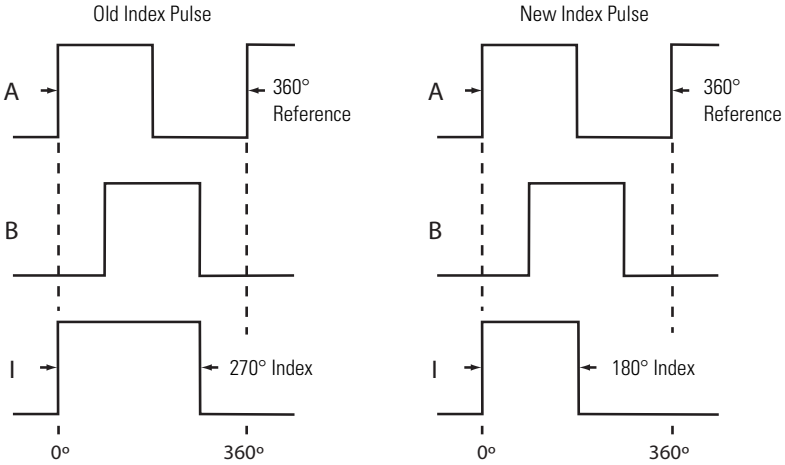
Details of the Change

Motors with a 5000 line encoder have an Index pulse-width of 90°. There is no change to the Index pulse-width of these motors.

Motors with a 2000 line encoder narrow the Index pulse-width from 270° to 180°, as measured in electrical degrees. 360° electrical is defined as one complete cycle of incremental output signal A.

The following diagram depicts the old and new Index pulse-width, with respect to the A and B signals, for F-Series motors with 2000 line encoders, catalog number F-xxxx-x-Hxxxx.

Index Pulse Comparison for F-Series Motors with 2000 Line Encoders



Waveforms represent clockwise (CW) motor shaft rotation when viewed facing the motor mounting flange.

Voltage levels on the A, B, and Index output signals change on all F-Series motors. The output voltage levels for both the 2000 line and 5000 line encoder output signals A, B, Index, and their inverted and complementary signals are as follows.

Encoder State	Old Encoder Outputs	New Encoder Outputs
Logic State = 0	0.5 V DC, max	1.0V DC, max
Logic State = 1	2.5 V DC, min	3.5V DC, min

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